



2022 YEAR IN REVIEW

# Trauma and Burn Centers

At Children's Hospital Colorado



Children's Hospital  
Colorado

# Table of contents

- Welcome **1**
- Pediatric trauma centers **2**
- Emergency medical services **8**
- Pediatric emergency medicine **10**
- Our teams **11**
- Outreach and education **15**
- Button battery ingestions **16**
- National trends in pediatric firearm and automobile fatalities **17**
- Regional Pediatric Burn Center **19**
- Burn Camps Program **20**
- Philanthropic support **25**
- Community events **26**
- Youth Firesetter Program **27**
- Publications and research **28**

# Welcome

---

Children's Hospital Colorado has two trauma centers. The first, an American College of Surgeons-verified Level 1 pediatric trauma center, is located at Children's Colorado, Anschutz Medical Campus, Aurora. The second, at Children's Colorado, Colorado Springs is a State of Colorado Level 2 trauma center. These trauma centers have an expansive reach that extends into our entire seven-state region.

In February 2022, we embarked on the journey of trauma center integration. As part of this, the institution established a system director of trauma programs with the goal of aligning trauma program functions between both the established trauma centers and the nondesignated state facilities. This integrated program approach allows for trauma registry standardization, accuracy and efficiency. Additionally, it allows us the ability to analyze systemwide data, which is useful in identifying trends and enhancing operational decision-making.

Through these efforts, Children's Colorado, Anschutz Medical Campus completed a successful trauma site survey in April 2022 while the Children's Colorado, Colorado Springs will reverify in February 2024.

Children's Colorado is committed to supporting its trauma programs and is dedicated to the optimization of pediatric trauma care across the care continuum.



# Children's Hospital Colorado trauma programs

## Locations:

Children's Colorado Anschutz Medical Campus, Aurora, Level 1 trauma center

Children's Colorado, Colorado Springs, Level 2 trauma center

## Meet the team:



### Steven L. Moulton, MD

Trauma and Burn Medical Director

Children's Colorado Anschutz Medical Campus, Aurora

steven.moulton@childrenscolorado.org



### Denis Bensard, MD

Associate Trauma Medical Director

Children's Colorado Anschutz Medical Campus, Aurora

denis.bensard@childrenscolorado.org



### John Bealer, MD

Trauma Medical Director

Children's Colorado, Colorado Springs

john.bealer@childrenscolorado.org



### Lana Martin, MHL, BSN

Trauma Programs Director

Lana.martin@childrenscolorado.org

## Trauma program:

### Shannon Becker, BSN

Trauma program manager, Anschutz Medical Campus, Aurora

### Taylor Townsend, BSN

Trauma program manager, Colorado Springs

### Ashley Urban

Management analyst, Anschutz Medical Campus, Aurora

### Michael Pirtle

Management analyst, Colorado Springs

### Amanda Abramczyk-Thill

Injury prevention, Colorado Springs

### Clare Decker

Injury prevention, Anschutz Medical Campus, Aurora

### John Coley, BSN

Trauma nurse coordinator, Anschutz Medical Campus, Aurora

### Eryn Bishop, BSN

Trauma nurse coordinator, Colorado Springs

### Brittany Howland, BSN

Trauma nurse coordinator, Colorado Springs

### Karin Whinery

Registrar, Anschutz Medical Campus, Aurora

### Stephanie Ohm

Registrar, Anschutz Medical Campus, Aurora

### Ricki Iverson

Registrar, Anschutz Medical Campus, Aurora

### Jennifer Smith

Registrar, Anschutz Medical Campus, Aurora

## Pediatric surgeons:

Steven Moulton, MD

John Bealer, MD\*

Denis Bensard, MD

John Wiersch, MD

Shannon Acker, MD

David Bliss, MD\*

Chris Derderian, MD

Jose Diaz-Miron, MD

Fredrick Karrer, MD

Ann Kulungowski, MD

David Partrick, MD

Jonathan Roach, MD

Kristine Corkum, MD

Stig Somme, MD

Ankush Gosain, MD

## Advanced practice providers:

Justin Alldredge, PA\*

Teren Culbertson, PA\*

Angela Drelles, PNP

Starla Eubanks, NP\*

Stephanie Finland, PN

Katie Flynn, PNP

Doug Haase, PA\*

Christianna Kaczmarek, PA\*

Richele Koehler, PA-C Lead

Caitlin Hegarty, NP

Robyn Moore, PA

Jessica Outten, NP

Brandy Ramos, NP\*

Karisa Reynolds, PA\*

AnnaMaria Salas, PA-C

Lauren Schneider, PNP

Hope Simmons, NP

Elise Van Etten, PA-C

Colton Davies\*, PA

Jessica Prater, PA

Kevin McLean, PA

\*Colorado Springs Team



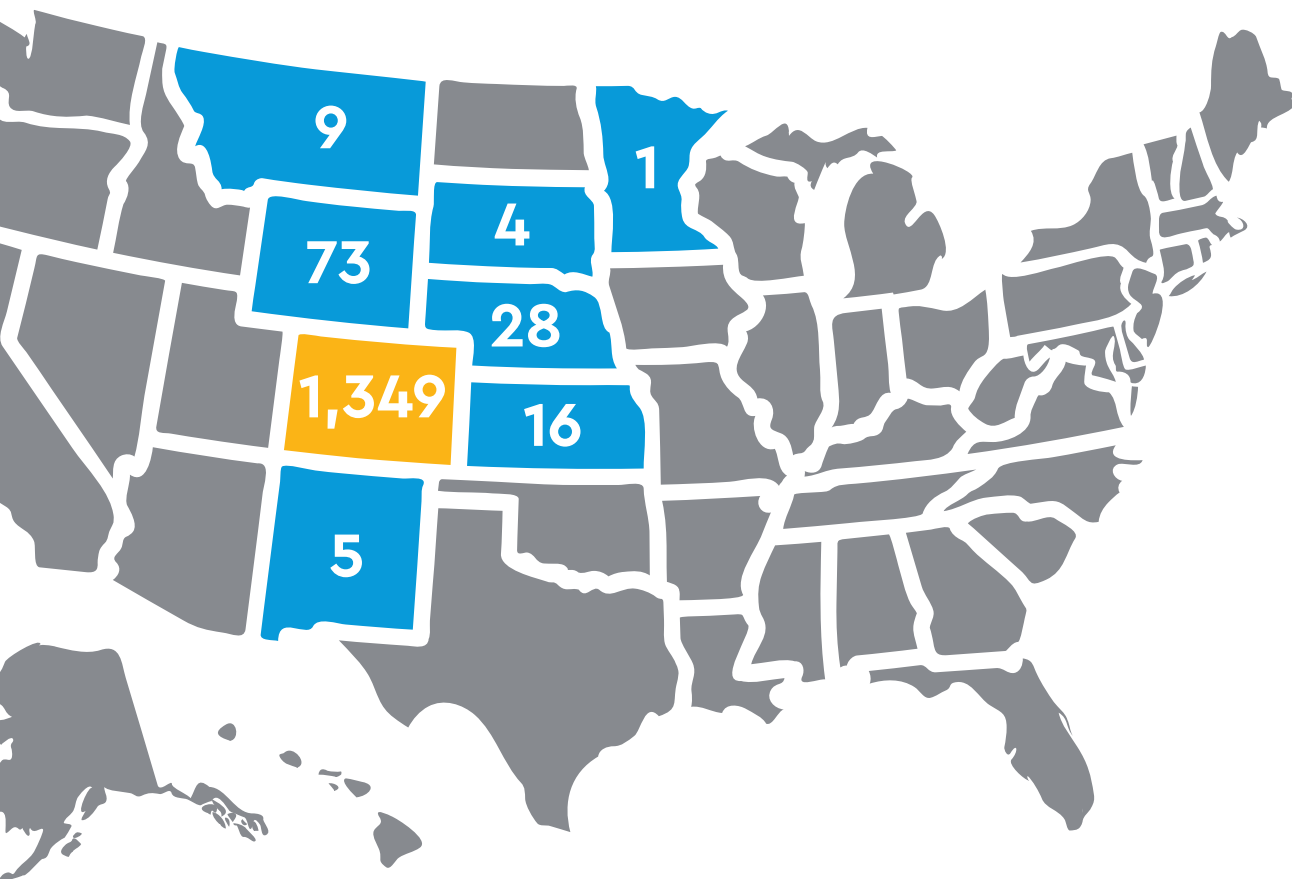
## State and ACS-verified level 1 pediatric trauma and burn center on the Anschutz Medical Campus

Our multidisciplinary Level I Regional Pediatric Trauma and Burn Center provides timely, comprehensive, cost-effective care for children with single system or complex multisystem trauma and burn-related injuries.

We are the only American College of Surgeons-verified Level I Pediatric Trauma Center in Colorado and the seven-state Rocky Mountain region. As a regional resource center, we set the standard for pediatric trauma and burn care.

### We treat children with traumatic injuries such as:

- Epidural or subdural hematoma
- Thoracic or cardiac injuries
- Solid organ injuries
- Pelvis or femur fractures
- Non-accidental trauma
- Burn injuries



## State-verified level 2 trauma center at Children's Hospital Colorado, Colorado Springs

When time is critical, comprehensive trauma care is now much closer for children in southern Colorado and northern New Mexico. Our state-verified Level 2 Trauma Center can provide immediate, life-saving care for the severest of injuries and can support a child or adolescent and their family throughout their recovery. We treat the full spectrum of injury including:

- Severe closed and penetrating head injuries (such as epidural and subdural hematomas)
- Thoracic and abdominal injuries (such as liver and spleen lacerations)
- Non-accidental trauma or neglect
- All varieties of fracture management, including pelvis and long-bone fractures
- Sports injuries



Age

**44%**  
0-5 years

**23%**  
6-10 years

**20%**  
11-14 years

**13%**  
15-18 years

Executive summary

**2,060**  
2022 total registry volume

**114**  
Trauma reds

**15%**  
Critically injured

**0.7%**  
Mortality rate

**0.6%**  
Admitted mortality rate

\*All Children's Hospital Colorado, Colorado Springs and Children's Colorado Anschutz Medical Campus, Aurora patients meeting inclusion criteria. Critically injured = ISS >15 and admitted. Mortality rate is all deaths and all patients meeting inclusion criteria. Admitted Mortality is patients admitted with mortality outcome and all patients admitted.

## Children's Hospital Colorado Trauma Programs Year at a Glance

Traumatic injuries treated at Children's Colorado, Anschutz Medical Campus, Aurora and Children's Colorado, Colorado Springs



**88%**  
Blunt

**Blunt top injuries**

- Fall
- Motor vehicle
- Sport/play
- Bike
- NAT



**8%**  
Penetrating

**Penetrating top injuries**

- Gunshot wound
- Stabbing
- Animal



**4%**  
Thermal

**Thermal top injuries**

- Scald
- Fire
- Grease






## Emergency medical services

We build relationships with emergency medical services providers to ensure the best outcomes in pediatric trauma and burn care. Our Transfer Center facilitates communication between prehospital providers, emergency medicine physicians and trauma surgeons, so that we can anticipate each patient's unique needs prior to arrival.

**72%** Of trauma patients are referred to us from another facility

## Transport modes in 2022 to Children's Colorado trauma centers

-  **45%** Ambulance
-  **20%** Aircraft
-  **35%** Privately owned vehicle

\*Children's Colorado Anschutz Medical Campus, Aurora and Children's Hospital Colorado, Colorado Springs patients meeting trauma criteria.



## Our teams

---

### Pediatric emergency medicine

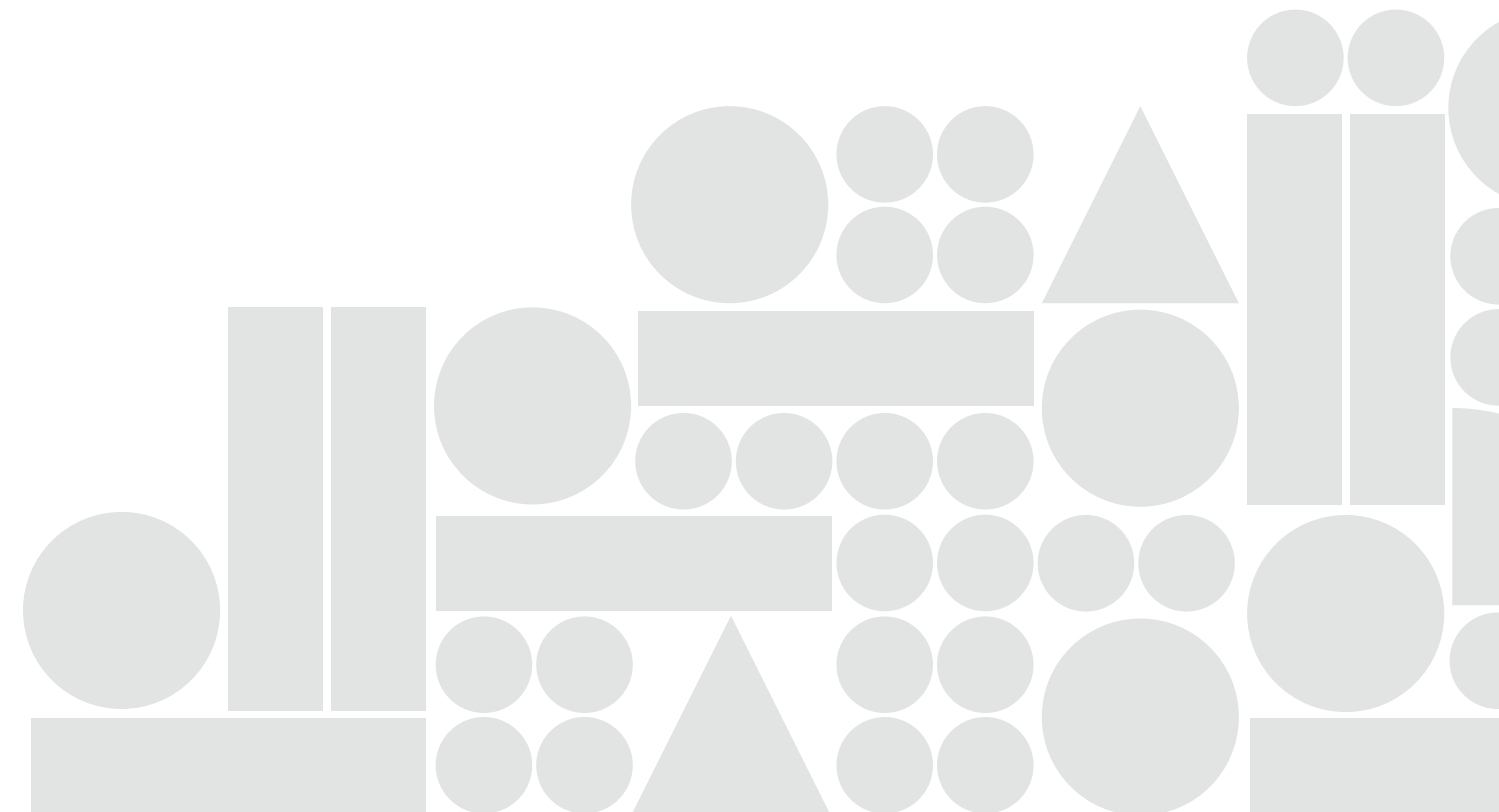
Our emergency departments are the point of entry for our trauma centers. Our emergency medicine physicians, advanced practice providers and more than 400 nurses and ancillary staff deliver high-quality emergent and urgent care to children of all ages, around the clock, serving an enormous geographic area. Our full-time emergency medicine faculty members are board-certified in pediatric emergency medicine. We care for a wide array of acuities and conditions, in addition to directing Flight For Life pediatric transports.

### Pediatric surgery

As a consistently top-ranked pediatric hospital, we offer several nationally recognized surgical procedures and programs for young patients. Our pediatric trauma surgeons provide 24/7, in-house coverage for immediate trauma and burn care.

### Orthopedic surgery

Our pediatric orthopedic surgery and rehabilitation medicine physicians and staff are leaders in innovative research and superior care for children and young adults, ensuring the best possible outcomes for our patients, families and communities. We provide integrated orthopedic, surgical and rehabilitation care across a broad spectrum of conditions that affect growing joints and bones, from common breaks and sprains to the most complex musculoskeletal deformities and traumatic injuries. No other program in the nation offers our level of integrated, multidisciplinary pediatric care. Our physicians also offer consultations for simple and complex pediatric orthopedic problems.





### Neurosurgery

Our Pediatric Neurosurgery Program offers integrated, comprehensive care for all types of disorders affecting the nervous system and skull, including traumatic injury, epilepsy, hydrocephalus, brain tumors, and facial and skull deformities.

Our fellowship-trained and board-certified pediatric neurosurgeons offer more than 60 years of combined experience and focus solely on the care of children with neurosurgical problems.

### Critical care medicine

The Children's Colorado pediatric intensive care unit (PICU) is the largest and most technologically advanced PICU in the region. Our private intensive care rooms offer patients and families state-of-the-art monitoring and critical care equipment in a private setting, with nursing stations and critical care staff just a few feet from each patient's bed.

Our PICU staff provide comprehensive services for children with single or multiorgan system failure or severe chronic illness, as well as those recovering from complex cardiac, orthopedic, neurologic, and general surgeries, and patients undergoing solid organ transplantation.

### Otolaryngology

As one of the largest groups of fellowship-trained pediatric otolaryngologists in the western U.S., our 15 pediatric more than ENT specialists offer more than 125 years of combined post-fellowship pediatric experience, seeing more than 18,000 patients annually.



### Child advocacy and protection team

Our Child Advocacy and Protection Team provides comprehensive medical evaluations in our weekly outpatient clinic and through inpatient and emergency department consultations.

We offer the only hospital-based multidisciplinary child abuse program in Colorado, proudly meeting the designation criteria of the Children's Hospital Association as a Child Abuse Center of Excellence. Our physicians were among the first in the country — and among the only in Colorado — to be board-certified in Child Abuse Pediatrics by the American Board of Pediatrics.

Family and child evaluation for suspected maltreatment includes family support and education. We offer best-practice care and treatment in a sensitive and family-centered manner.

### Rehabilitation medicine

The primary goal of our Rehabilitation Program is to optimize each child's ability to adapt to the environment, to ease the effects of disability on the child's development and allow the child to be fully included in community living. A child's success in the program results from the collaboration of rehabilitation staff, the child's primary care physician and the child's family — all integral components of the child's care team. Our rehab team is CARF Accredited as of 2022.

## Our pediatric trauma subspecialty team

- |                               |  |
|-------------------------------|--|
| <b>16</b> Trauma surgeons     | <b>17</b> Otolaryngologists                  |
| <b>17</b> Orthopedic surgeons | <b>3</b> Hand surgeons                       |
| <b>4</b> Cardiac surgeons     | <b>3</b> Plastic surgeons                    |
| <b>7</b> Urologists           | <b>27</b> Critical care intensivists         |
| <b>9</b> Ophthalmologists     | <b>80</b> Emergency medicine physicians      |
| <b>3</b> Gynecologists        | <b>12</b> Rehabilitation medicine physicians |
| <b>9</b> Neurosurgeons        |  |





## Injury prevention programs

Our injury prevention team strives to ensure children stay safe by educating kids, caregivers, community partners and our internal team members. We also offer free or reduced-cost safety items and resources, including car seats and boosters, bike helmets and storage solutions for firearms.

There are five team members who serve our community and engage with families at Children's Colorado, Anschutz Medical Campus; Children's Colorado Health Pavilion, Aurora; and Children's Colorado, Colorado Springs. We utilize local, statewide and national data to understand trends in the causes of traumatic injuries and evolve our programs to respond to them.

We also operate the Safety Store, located in Children's Colorado, Anschutz Medical Center, as an onsite resource for families to purchase safety products and receive individualized information. All of the Safety Store's proceeds are reinvested in injury-prevention initiatives to keep children safe at home, in the car and at play. For more information, contact the Safety Store at [SafetyStore@childrenscolorado.org](mailto:SafetyStore@childrenscolorado.org) or 720-777-3185.

## 2022 injury prevention efforts



### Educated the community

**27** Free classes offered to the community, with **152** total individuals attending. Topics included stop the bleed and pediatric abusive head trauma prevention.



### Trained staff

**19** Staff trained in 2022 as child passenger safety technicians (CPSTs), increasing total certified CPSTs systemwide to **49**. We also trained **21** staff as new car seat fitters and **25** medical residents on child passenger safety.



### Helped kids travel safely

**529** Car seat and booster seat appointments completed providing **313** reduced-cost child restraint systems to families in need. We had a **98.5%** referral completion rate for the primary care distribution program.



### Extended our reach

**34** Community outreach events attended, allowing us to connect with more than **3,000** caregivers and children. We also completed nine media stories on child safety topics, including helmet use, window fall prevention and swim safety.



## Outreach and education

### Western Pediatric Trauma Conference

July 13 and 14, 2022 • 579 attendees

The Western Pediatric Trauma Conference is a nationally renowned pediatric trauma conference led by Children's Colorado, Phoenix Children's Hospital, Primary Children's Hospital, Children's Hospital Los Angeles and Stanford Children's Hospital to improve outcomes in pediatric trauma care worldwide.

### Colorado Pediatric Trauma Conference

November 16 and 17, 2022 • 162 attendees

The annual pediatric trauma conference provides education on state-of-the-art care of the pediatric trauma patient. This conference is attended by regional and national physicians, nurses and ancillary providers.

### Pediatric Emergency Education Lecture Series

Monthly • 302 attendees

This series offers free pediatric education to prehospital professionals on a monthly basis.

### Trauma Video Review

Monthly • 252 virtual attendees

Trauma Video Review is a monthly educational series for trauma team members from pediatric emergency medicine, surgery, nursing and ancillary staff, to critically review challenging trauma cases. Each video is critiqued for team preparation, communication, and adherence to role responsibilities, as well as timeliness and appropriateness of interventions. Quality of care issues are foremost and can lead to changes in trauma-related policies and procedures. Attendees receive 1.0 AMA PRA hours of Continuing Medical Education.

### Colorado Springs Pediatric Grand Rounds Series

Bi-monthly • 3,993 registered

Recognizing the need for additional educational opportunities for all providers caring for children and adolescents in Southern Colorado, the Children's Hospital Colorado, Colorado Springs group launched a virtual "Grand Series" in 2020. This educational series, providing continuing educational credit to the widest possible range of medical providers, is conducted twice monthly via a virtual platform. While skewed towards trauma-related topics, the series has been intentionally designed to provide a broad range of pediatric topics that are pertinent to any and all healthcare providers caring for children. The program has been extraordinarily successful, reaching not only providers throughout the state of Colorado but also providers in 22 other states and 14 countries. To date, the program has credited over 3,500 continuing educational hours to providers working in every role throughout the spectrum of clinical medical care.

### Trauma Grand Rounds Series

Monthly • 148 attendees

This monthly series allows for education related to subspecialties within the multidisciplinary trauma team. Trauma grand rounds provide an opportunity to incorporate specialty care guidelines in the treatment of pediatric trauma patients.

# Button battery ingestions

Credit: LaDonna J. Malone and Angie L. Miller

Button battery ingestions have been increasing since the early 2000s with those lodging in the esophagus posing greatest risk. The risk for severe complications, including death from massive bleeding, can occur more than two weeks after removal of the battery. Increasing awareness of the public and emergency healthcare workers on the importance of rapid removal, management and close surveillance of these patients is vital for this vulnerable population. At our institution, following cases of massive bleeding, we began performing MRI of the chest after button battery removal in these patients, beginning in 2012, to attempt to stratify those at greatest risk.

## Research

The MRI imaging findings following button battery removal from 2012-2018 were reviewed, as well as any other imaging, hospital course and outcome. There were 23 patients imaged, and of those patients, 48% had severe complications including esophageal perforation, tracheoesophageal fistula and spondylodiscitis. No massive bleeding occurred in this cohort. MRI findings included extensive inflammation surrounding the vasculature, esophagus and trachea, which receded sequentially on follow-up exams. Another finding seen in those with severe complications was length of blooming artifact (seen with structures that can be magnetized such as hemorrhage) greater than 2 centimeters compared to less than 2 centimeters in those that didn't develop complications.

Our multidisciplinary trauma team has developed a management pathway for these patients emphasizing rapid battery removal and incorporating management guidelines on hospitalization and imaging utilization, including MRI, in part based on this research.

## Future directions

An ongoing follow-up project evaluating a larger cohort of patients, including earlier patients who didn't have MRI imaging, as well as more recent patients, is ongoing to gather more information and help guide clinical management. This work has the potential to help predict who is at greatest risk for developing severe complications, especially massive bleeding.

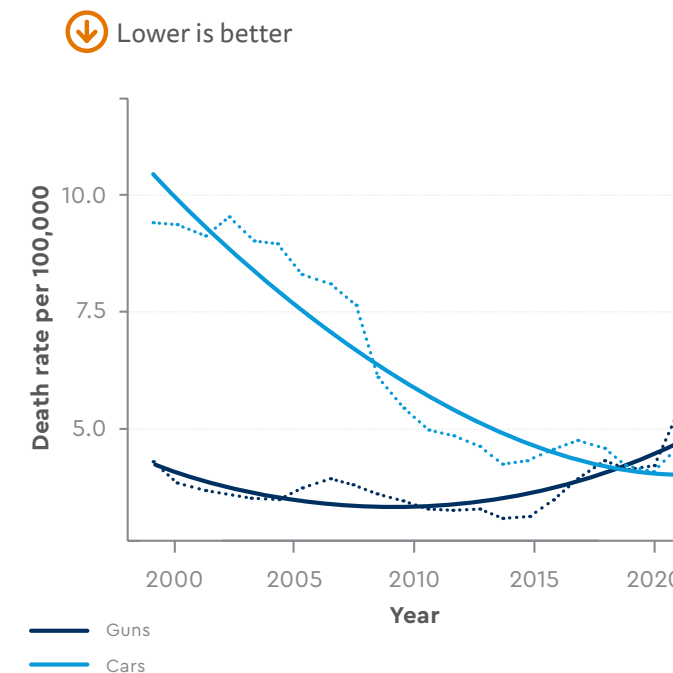


# National trends in pediatric firearm and automobile fatalities

Credit: Jenny Stevens, Kaci Pickett, Marina L. Reppucci, Margo Nolan, and Steven Moulton

Successful public health policies and injury prevention efforts have reduced pediatric automobile fatalities across the United States. In 2019, firearm injuries exceeded motor vehicle crashes (MVC) as the leading cause of childhood death in Colorado. We sought to determine if similar trends exist nationally and if state gun laws impact firearm injury fatality rates.

In 1999, the national pediatric fatality rate for MVCs was 248% higher than firearm injuries. By 2020, the fatality rate for MVCs was 16% lower than that of firearm injuries. For each increase in letter grade for gun law strength there was an 18% reduction in the firearm fatality rate. States with the strongest gun laws (A) had a 55% lower firearm fatality rate compared to those with the weakest laws (F).



As of 2019, firearm injuries now represent the leading cause of death in children and adolescents in the U.S., and individual state gun law strength has a significant impact on pediatric firearm injury fatality rates. A multidisciplinary approach, including public health policies to strengthen state firearm legislation, education to improve safe storage of firearms, and developing research efforts for effective injury prevention strategies are necessary to help mitigate the burden of firearm injuries among pediatric populations across our nation.



## Burn Camps Program

The Children's Hospital Colorado Burn Camps Program is an American Camp Association-accredited suite of programs structured to meet the rehabilitative and psychosocial needs of children who have sustained a burn injury. Since its inception in 1983, the program has been designed to meet the specific needs of children who have sustained a burn injury by providing a residential camp program with world-class medical care, professional camp staff, dedicated staff from referring burn units and community service partners.

Our mission is to provide children who have sustained a burn injury, and their families, the opportunity to build courage and thrive throughout their recoveries and beyond by offering inspiration, rehabilitation, and shared experiences in a safe, nurturing and supportive community. It is our vision to be a leader in quality outcomes and camper safety through innovative programming delivering the burn camp experience to all children who sustain a burn injury.

We empower our campers and families to thrive through challenges in a safe and nurturing environment. Campers engage in intentional activities, including horseback riding, arts and crafts, rock climbing, games and swimming. These curated activities encourage boundless creativity, self-expression, newfound courage, adventure, and create a positive self-image, all while allowing kids to make lifelong friendships. Our campers play with purpose and start to discover who they are as people. They learn that their scars are part of them, but do not define who they are, and they begin to heal to as they begin to heal.



### 2022 HIGHLIGHTS

#### New Burn Ambassadors Program

Every two years, the community nominates a group of patients to represent Children's Hospital Colorado as patient ambassadors. Throughout their two-year commitment, ambassadors and their families will share their stories, help to raise money and represent Children's Colorado at community fundraising events. We are incredibly grateful to Ella and Will for representing the Burn Center and Burn Camps Program as Burn Ambassadors in 2022 and 2023.

An early walker, Ella was just 11 months old when she leaned against the hot glass of a gas fireplace resulting in deep contact burn injuries to her palms. Her parents rushed her to Children's Hospital Colorado. There, she was treated by the head of the Burn Center, Steven Moulton, MD. Beyond the expert care that Ella received that night and subsequently — including multiple skin grafts on both her hands and years of occupational, rehabilitation and physical therapy — her family also received the emotional support they all needed to heal. As a middle schooler, Ella attended the Children's Colorado Burn Camps Program, a residential camp designed to meet the psychological and rehabilitation needs of children who have sustained a burn injury. It helped her process some of the upsetting experiences she has faced. Today, Ella has big plans for her future. She is an accomplished pianist, loves to draw Japanese-style anime and wants to be an illustrator when she grows up.

Will, a high school student, was seriously injured in the summer of 2020 when a small smoke flare — the kind sold alongside sparklers at roadside fireworks tents — malfunctioned and exploded in his hand. The accident left Will with painful burns along his right palm, thumb and index finger. He was treated at the Burn Center at Children's Hospital Colorado and has participated in the Hospital's annual Burn Camp ever since his injury. "Everyone at the Burn Center helped me with my wounds and hand therapy so that I could have a great outcome from my injury," Will says.



2022 program summaries

Winter Camp | February 2022 | Virtual

With the continuing COVID-19 pandemic, and to keep our burn camp family safe, we held Winter Camp virtually from Monday, Feb. 7-Feb. 9. It consisted of three two-hour Zoom calls featuring activities, fun, group discussions and condo time together. Virtual Winter Burn Camp was developed with live Zoom sessions and included mailing each camper their customized "Camp In a Box." The "Camp In a Box" was filled with room decorations, camp t-shirt, a journal, stickers, craft activities, camp gear, snacks, and a gift card to provide one meal for the family for the week. This year's theme was "Pause" and while this will never replace our in-person ski/snowboard camp, for now it was a great opportunity for campers to reconnect with friends and enjoy some fun activities, great conversations and programming with their peers.

Family Camp | June 17-22, 2022 | YMCA of the Rockies | Estes Park

We were incredibly excited to host six families at the YMCA of the Rockies in Estes Park, CO from June 18-22. It was the first time since 2019 that we were able to gather together. When a significant burn injury occurs, it affects not just the person that was burned but other family members as well. Recovering from burn injuries goes beyond the burn and includes emotional healing for parents and siblings. Family Camp offers the support to continue the healing of each person allowing them to move forward and grow as a family. Family Camp gives families a chance to connect with others that have had similar experiences, connect as a family, focus on their special strengths and support their growth. It offers the opportunity to build confidence while decreasing guilt, shame, stigmas and other negative feelings that family members often experience after a burn injury.

Courage Classic | July 16-17, 2022 | Copper Mountain

A huge thank you to those who cycled over two days and raised funds for the Burn Camps Program in the 2022 Courage Classic! Our nine riders raised nearly \$12,000! We more than doubled our riders and monies raised from 2021. Team S'more Courage is a group of dedicated volunteers raising money by hitting the road for two days of cycling over picturesque Rocky Mountain passes, starting and

ending in Copper Mountain. Whether you ride, fundraise, donate, volunteer or sponsor the Courage Classic, your support helps provide lifesaving care for children at the region's only nonprofit pediatric hospital.

Summer Camp | August 15-21, 2022 | Cheley Colorado Camps | Estes Park

Celebrating our 39th summer, the Cheley/Children's Hospital Colorado Summer Burn Camp hosted 51 pediatric burn survivors in the heart of the Rocky Mountains for an amazing week. Our theme this year was, "be. you." and campers found a way to challenge themselves and committed to finding a path towards being their best selves both at camp and at home, and in their communities. From the moment they stepped off the bus to a parade of medical professionals, firefighters, referring hospital staff, current and alumni Cheley counselors, to their final goodbye and appreciation circle, thrilling experiences were shared at camp that will be remembered for a lifetime. Given the opportunity to come together and share their stories with one another, campers reflected on their past and continued healing their physical and emotional scars. With their burn injury bringing them together, the safe, challenging, nurturing and accepting environment at camp is what allows campers to thrive. We sang, danced, hiked, fished, rode horses, swam and adventured on outcamps. All of us challenged ourselves physically and emotionally, reconnected with our camp community, and made lifelong friends. Through all of this, campers demonstrated why the camp experience is a necessary and a fulfilling part of their story.

Creating Ties | November 4, 2022 | Maggiano's Little Italy

This year's Creating Ties Dinner was another resounding success! It was an incredible evening of connecting with camp friends and hearing from campers about their journeys. We are very thankful to those who joined us in person, made a donation, donated or purchased a silent auction item, and/or sponsored the event. We're incredibly excited to announce we broke another fundraising record, raising over \$155,000!

# Thank you to our 2022 creating ties sponsors:

Mark Martinez Family

Bradford White Water Heaters

KM Sales

MTech Mechanical

Denver Fire Fighters Charitable Foundation

Keating Wagner Polidori Free

UC Health Burn Center

Anonymous

Colorado Firefighter Calendar

Dennis Family

Department of Pediatric Surgery

Joey Irwin Family

Maggiano's Little Italy

Strear Family Foundation

Trentel Family

Monies raised went to the Thrive Endowment, which ensures any child who has sustained a burn injury has the opportunity to attend Burn Camp long into the future. It was an incredible night filled with friends, food, libations, auction and the power of camp.



### Community events

We provide and participate in a wide range of events, including community, fundraising, prevention, awareness, conferences and continuing education for medical professionals. Annually, we host community support activities for families healing from a burn injury. Typically, we hold additional community events throughout the year at different locations around Denver. Our community events provide opportunities to connect families to other families, the fire service and community partners. While these have been on hold due to COVID-19 precautions, we look forward to gathering together again soon.

Burn Awareness Week, organized by the American Burn Association, is observed the first full week in February and is a window of opportunity for organizations to mobilize burn, fire and life safety educators to unite in sharing a common burn awareness and prevention message in our community. We are a member of the Colorado Risk Reduction Network focused on injury prevention and safety initiatives throughout the year.

We are members of the Phoenix Society for Burn Survivors peer support program. Our volunteers, who have themselves navigated a burn injury and recovery, provided peer support to children, teens, siblings and caregivers across the acute and rehabilitative phases of care through the Survivors Offering Assistance in Recovery (SOAR) peer support program.

### Youth Firesetting Evaluation and Treatment Program

The Youth Firesetting Evaluation and Treatment Program was created in response to the need for specialized community services addressing youth misusing fire. The program focuses on helping youth make safer decisions. Due to health restrictions in 2020, we were not able to conduct multifamily interventions, but continued to meet with families individually or via video and telehealth. The youth and families participating in this program were highly impacted by the isolation and reduction of youth activities and services at school and in the community due to the COVID-19 pandemic.

We evaluate and treat patients with injuries from the misuse of fire, candles, electricity, lightbulbs, chemicals and fireworks, and help families develop safety plans. We receive community referrals from fire departments, schools, mental health services, juvenile justice and parents of children exhibiting high-risk firesetting behavior. Families receive mental health intervention for these high-risk behaviors to help prevent burn injuries and enhance community safety.

## Philanthropic support

*Our work would not be possible without the philanthropic support of multiple partner organizations and individuals. Thank you to our corporate partners who contributed \$7,500 or more in 2022. We appreciate their volunteer efforts and financial contributions, which contribute to the growth and development of our Trauma and Burn Center and Burn Camps Program.*



Anonymous  
Terry Boe

Anonymous  
Terry Boe  
Erin Martinez  
Ross Pulkrabec  
Hot Times  
Kool Cars  
Wiczky Family

#### TWO RECORD-BREAKING COMMUNITY EVENTS:

#### BCER A-Basin fire hose race raises record \$30,000

The 15th annual Fire Hose Race was held on Friday, Feb. 25, 2022, at Arapahoe Basin. Hosted by BCER, corporations and fire departments from across Colorado team up to participate in a unique slalom-style event. Teams of five race down a 15-gate slalom course while holding on to 50 feet of fire hose. And you can't miss them — all participants must dress in bunker gear including a firefighter jacket and helmet. This year's event raised a record \$30,000 for the Burn Camps Program. We are incredibly thankful to BCER for once again hosting the event and to all the sponsors and participants!

#### Colorado Fire Protection Association

The Colorado Fire Protection Association (CFPA) is one of our longest-running donors. Their annual golf tournament in support of the Burn Camps Program was held on Friday, Sept. 9, 2022, at Arrowhead Golf Club. It was one of their most successful tournaments in their history raising \$15,000. Please join us in thank the CFPA for their generous and continued support!

# Research projects with IRB approval

1. FAST MR "Fast MR for Young Children with Traumatic Brain Injury"
2. Early MRI biomarkers for outcome prediction in pediatric traumatic brain injury"
3. Impact of high-fidelity simulation on prehospital provider self-efficacy and competency in managing pediatric emergencies
4. VIPER Collaborative "The Videography In Pediatric Emergency Resuscitation Collaborative"
5. PECARN C-Spine "Development and Testing of a Pediatric Cervical Spine Injury Risk Assessment Tool (C-Spine)"
6. PEDS Ready "Trauma Designation, Presence of a Pediatric Emergency Care Coordinator, and Pediatric Emergency Department Readiness"
7. VIPER Intubation Trial "Videolaryngoscopy versus direct laryngoscopy in emergency pediatric tracheal intubation"
8. PED Injuries "The Epidemiology of Pediatric Injuries During a Global Pandemic"
9. CRI and Continuous Assessment of Hemodynamic Compensation in Pediatric Trauma
10. Difficult Airway "High Risk Criteria for the Physiologically Difficult Pediatric Airway: a Multicenter, Observational Study to Generate Validity Evidence"
11. COVID Airway Management "Impact of COVID-19 on Pediatric Airway Management in the Emergency Department"
12. Comprehensive Review of Pediatric Open Tibia Fractures
13. Impact of the COVID-19 Pandemic on Penetrating Pediatric Trauma in the states of Colorado and Utah
14. Non-Accidental Trauma in the Rocky Mountain Region
15. Clinical Relevance of MRI in Cervical Spine Clearance for Pediatric Patients: A Prospective Study
16. WPSRC Multi-Center Retrospective Cohort Study of Occult Ligamentous
17. Injury in Children with Normal Bony Cervical Spine Imaging
18. Early MRI biomarkers for outcome prediction in pediatric traumatic brain injury
19. Early MRI biomarkers for outcome prediction in pediatric traumatic brain injury



## 2022 publications

### Critical Care

1. Kochanek, P. M., Adelson, P. D., Rosario, B. L., Hutchison, J., Miller Ferguson, N., Ferrazzano, P., O'Brien, N., Beca, J., Sarnaik, A., LaRovere, K., Bennett, T. D., Deep, A., Gupta, D., Willyerd, F. A., Gao, S., Wisniewski, S. R., Bell, M. J., & ADAPT Investigators (2022). Comparison of Intracranial Pressure Measurements Before and After Hypertonic Saline or Mannitol Treatment in Children With Severe Traumatic Brain Injury. *JAMA network open*, 5(3), e220891. <https://doi.org/10.1001/jamanetworkopen.2022.0891>

### Emergency Medicine

2. Cicero, M. X., Baird, J., Adelgais, K., Brown, L., & Auerbach, M. (2022). Emergency Medical Services Provider Acceptance of and Attitudes About Pediatric SimBox Simulations. *Pediatric emergency care*, 38(11), e1655–e1659. <https://doi.org/10.1097/PEC.0000000000002678>
3. Donoghue, A., O'Connell, K., Neubrand, T., Myers, S., Nishisaki, A., & Kerrey, B. (2022). Videographic Assessment of Tracheal Intubation Technique in a Network of Pediatric Emergency Departments: A Report by the Videography in Pediatric Resuscitation (VIPER) Collaborative. *Annals of emergency medicine*, 79(4), 333–343. <https://doi.org/10.1016/j.annemergmed.2021.12.014>
4. Harris, M., Crowe, R. P., Anders, J., D'Acunto, S., Adelgais, K. M., & Fishe, J. N. (2022). Identification of Factors Associated with Return of Spontaneous Circulation after Pediatric Out-of-Hospital Cardiac Arrest Using Natural Language Processing. *Prehospital emergency care*, 1–8. Advance online publication. <https://doi.org/10.1080/10903127.2022.2074180>
5. McCormick, T., Haukoos, J., Hopkins, E., Trent, S., Adelgais, K., Platnick, B., & Cohen, M. (2022). Predictive accuracy of adding shock index to the American College of Surgeons' minimum criteria for full trauma team activation. *Academic emergency medicine : official journal of the Society for Academic Emergency Medicine*, 29(5), 561–571. <https://doi.org/10.1111/acem.14459>
6. Tsao, H. S., Alter, R., Kane, E., Gross, T., Browne, L. R., Auerbach, M., Leonard, J. C., Ludwig, L., & Adelgais, K. M. (2022). Pediatric Emergency Care Coordination in EMS Agencies: Findings of a Multistate Learning Collaborative. *Prehospital emergency care*, 1–12. Advance online publication. <https://doi.org/10.1080/10903127.2022.2126040>
7. Wang, G. S., Bajaj, L., Poppy, C., & Valuck, R. (2022). Integrated Prescription Drug Monitoring Program for Opioid Prescribing at a Children's Hospital. *Clinical pediatrics*, 61(7), 465–468. <https://doi.org/10.1177/00099228221085344>

### Orthopedic Surgery

8. Cummings, J. L., Schwabe, M. T., Rivera, A. E., Sanders, J., Denning, J. R., Neal, K., Bellaire, L. L., Choe, J., Gaio, N., Goldstein, R., Crowe, M., & Hosseinzadeh, P. (2023). K-wire Versus Screw Fixation in Displaced Lateral Condyle Fractures of the Humerus in Children: A Multicenter Study of 762 Fractures. *Journal of pediatric orthopedics*, 10.1097/BPO.0000000000002348. Advance online publication. <https://doi.org/10.1097/BPO.0000000000002348>

9. Douleh, D. G., Carry, P., Sanders, J. S., & Rhodes, J. T. (2022). Pediatric Supracondylar Humerus Fracture AAOS Appropriate Use Criteria: Does Treatment at a Pediatric Level I Trauma Center Comply?. *Journal of pediatric orthopedics*, 42(5), e470–e473. <https://doi.org/10.1097/BPO.0000000000002115>
10. Garg, S., Kleck, C. J., Gum, J. L., & Larson, A. N. (2022). Navigation Options for Spinal Surgeons: State of the Art 2021. *Instructional course lectures*, 71, 399–411.
11. Gibly, R. F., Georgopoulos, G., Carry, P. M., & Miller, N. H. (2022). Lower extremity physeal fractures and post-traumatic surgical deformities; National Trauma Data Bank and institutional cohorts. *Journal of clinical orthopaedics and trauma*, 27, 101827. <https://doi.org/10.1016/j.jcot.2022.101827>
12. Ramalingam, W. G., Carry, P., Brazell, C., Calkins, R., Linza-Moscati, S., Stoneback, J., & Miller, N. H. (2022). Outcomes of displaced adolescent distal third tibia fractures: can we do better?. *Journal of pediatric orthopedics. Part B*, 31(2), e147–e153. <https://doi.org/10.1097/BPB.0000000000000896>
13. Sanders, J. S., Ouillette, R. J., Howard, R., Boutelle, K., Carroll, A. N., Bastrom, T. P., Paik, C., Stearns, P., Pennock, A. T., & Upasani, V. V. (2023). Nonoperative Versus Operative Treatment of Type IIA Supracondylar Humerus Fractures: A Prospective Evaluation of 99 Patients. *Journal of pediatric orthopedics*, 43(1), e9–e16. <https://doi.org/10.1097/BPO.0000000000002282>
14. Shaw, K. G., Salton, R. L., Carry, P., Hadley-Miller, N., & Georgopoulos, G. (2022). Multi-day delay to care identified in pediatric trauma cases during COVID-19. *Journal of pediatric orthopedics. Part B*, 31(1), e56–e64. <https://doi.org/10.1097/BPB.0000000000000910>

### Pediatric Surgery

15. 1Diaz-Miron, J., Reppucci, M. L., Weinman, J., Kaizer, A., Annam, A., Orsborn, J., Steward, L., Wilson, J., & Bensard, D. (2022). The use of ultrasound in establishing COVID-19 infection as part of a trauma evaluation. *Emergency radiology*, 29(2), 227–234. <https://doi.org/10.1007/s10140-021-02005-1>
16. Nolan, M. M., Reppucci, M. L., Urban, A., Kierulf, G., Fields, T., Boulter, T., Drelles, A., & Moulton, S. L. (2022). A Single Institution's Recent Experience with Pediatric Hand Burns. *Journal of burn care & research : official publication of the American Burn Association*, irac174. Advance online publication. <https://doi.org/10.1093/jbcr/irac174>
17. Reppucci, M. L., Acker, S. N., Cooper, E., Meier, M., Stevens, J., Phillips, R., Moulton, S. L., & Bensard, D. D. (2022). Improved identification of severely injured pediatric trauma patients using reverse shock index multiplied by Glasgow Coma Scale. *The journal of trauma and acute care surgery*, 92(1), 69–73. <https://doi.org/10.1097/TA.0000000000003432>
18. Reppucci, M. L., Pickett, K., Stevens, J., Nolan, M. M., & Moulton, S. L. (2023). Outcomes in Pediatric Trauma Patients Who Receive Blood Transfusion. *The Journal of surgical research*, 282, 232–238. <https://doi.org/10.1016/j.jss.2022.10.007>
19. Reppucci, M. L., Pickett, K., Stevens, J., Phillips, R., Recicar, J., Annen, K., & Moulton, S. L. (2022). Massive transfusion in pediatric trauma—does more blood predict mortality?. *Journal of pediatric surgery*, 57(2), 308–313. <https://doi.org/10.1016/j.jpedsurg.2021.09.051>
20. Reppucci, M. L., Stevens, J., Cooper, E., Nolan, M. M., Jujare, S., Acker, S. N., Moulton, S. L., & Bensard, D. D. (2023). Use of reverse shock index times Glasgow coma scale (rSIG) to determine need for transfer of pediatric trauma patients to higher levels of care. *Journal of pediatric surgery*, 58(2), 320–324. <https://doi.org/10.1016/j.jpedsurg.2022.10.041>
21. Reppucci, M. L., Stevens, J., Pickett, K., Bensard, D. D., & Moulton, S. L. (2022). Pediatric cardiac and great vessel injuries: Recent experience at two pediatric trauma centers. *Journal of pediatric surgery*, 57(7), 1358–1362. <https://doi.org/10.1016/j.jpedsurg.2021.11.025>
22. Reppucci, M. L., Tong, S., Simon, S. L., Nolan, M. M., Jujare, S., Moulton, S. L., & Kaar, J. L. (2023). Factors associated with new mental health diagnoses and resource utilization among pediatric patients following trauma admission. *Journal of pediatric surgery*, 58(1), 118–124. <https://doi.org/10.1016/j.jpedsurg.2022.09.007>
23. Stevens, J., Leonard, J., Reppucci, M. L., Schroepel, T., Bensard, D., & Haasz, M. (2022). Individual and neighborhood level characteristics of pediatric firearm injuries presenting at trauma centers in Colorado. *The journal of trauma and acute care surgery*, 93(3), 385–393. <https://doi.org/10.1097/TA.0000000000003520>
24. Stevens, J., Reppucci, M. L., Meier, M., Phillips, R., Shahi, N., Shirek, G., Acker, S., Bensard, D., & Moulton, S. (2022). Pre-hospital and emergency department shock index pediatric age-adjusted (SIPA) "cut points" to identify pediatric trauma patients at risk for massive transfusion and/or mortality. *Journal of pediatric surgery*, 57(2), 302–307. <https://doi.org/10.1016/j.jpedsurg.2021.09.053>
25. Stevens, J., Phillips, R., Reppucci, M. L., Pickett, K., Moore, H., & Bensard, D. (2022). Does the mechanism matter? Comparing thrombelastography between blunt and penetrating pediatric trauma patients. *Journal of pediatric surgery*, 57(7), 1363–1369. <https://doi.org/10.1016/j.jpedsurg.2021.09.010>
26. Stevens, J., Pickett, K., Moore, H., Reppucci, M. L., Phillips, R., Moulton, S., & Bensard, D. (2022). Thrombelastography and transfusion patterns in severely injured pediatric trauma patients with blunt solid organ injuries. *The journal of trauma and acute care surgery*, 92(1), 152–158. <https://doi.org/10.1097/TA.0000000000003392>
27. Stevens, J., Pickett, K., Reppucci, M. L., Nolan, M., & Moulton, S. L. (2023). National trends in pediatric firearm and automobile fatalities. *Journal of pediatric surgery*, 58(1), 130–135. <https://doi.org/10.1016/j.jpedsurg.2022.09.028>



# Contact us

**One Call**

Phone: 1-800-599-3904

## Anschutz Trauma Program

Phone: 720-777-6282

Email: [childrens.trauma@childrenscolorado.org](mailto:childrens.trauma@childrenscolorado.org)

Web: [childrenscolorado.org/trauma](http://childrenscolorado.org/trauma)

## Colorado Springs Trauma Program

Phone: 719-305-9912

## Education Outreach

Phone: 720-777-6604

Email: [emergency.outreach@childrenscolorado.org](mailto:emergency.outreach@childrenscolorado.org)

Web: [childrenscolorado.org/tebo](http://childrenscolorado.org/tebo)

## Burn Center

Phone: 720-777-6604

Email: [childrens.burn@childrenscolorado.org](mailto:childrens.burn@childrenscolorado.org)

Web: [childrenscolorado.org/burn](http://childrenscolorado.org/burn)

## Burn Camps

Phone: 720-777-8295

Email: [learnmore@noordinarycamps.org](mailto:learnmore@noordinarycamps.org)

Web: [noordinarycamps.org](http://noordinarycamps.org)

## Youth Fire Setters

Phone: 720-777-6604



**Children's Hospital Colorado**

Anschutz Medical Campus | 13123 East 16th Avenue, B245 Aurora, CO 80045 | [childrenscolorado.org](http://childrenscolorado.org)

© Children's Hospital Colorado 2023 All rights reserved.

**Discrimination is Against the Law.** Children's Hospital Colorado complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Children's Hospital Colorado does not exclude people or treat them differently because of race, color, national origin, age, disability, or sex.

Children's Hospital Colorado provides free aids and services to people with disabilities to communicate effectively with us, such as: Qualified sign language interpreters, written information in other formats (large print, audio, accessible electronic formats, other formats). Children's Hospital Colorado provides free language services to people whose primary language is not English, such as: Qualified interpreters, information written in other languages.

If you need these services, contact the hospital main line at 720.777.1234.

If you believe that Children's Hospital Colorado has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, or sex, you can file a grievance with: Corporate Compliance Officer, 13123 E 16th Avenue, B450, Aurora, Colorado 80045, Phone: 720.777.1234, Fax: 720.777.7257, [corporatecompliance@childrenscolorado.org](mailto:corporatecompliance@childrenscolorado.org). You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Corporate Compliance Officer is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at: U.S. Department of Health and Human Services 200 Independence Avenue, SW Room 509F, HHH Building Washington, D.C. 20201 1-800-368-1019, 800-537-7697 (TDD) Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>.

Children's Hospital Colorado complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex.

ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 1-720-777-1234.

CHÚ Ý: Nếu bạn nói Tiếng Việt, có các dịch vụ hỗ trợ ngôn ngữ miễn phí dành cho bạn. Gọi số 1-720-777-1234.

주의: 한국어를 사용하시는 경우, 언어 지원 서비스를 무료로 이용하실 수 있습니다. 1-720-777-1234 번으로 전화해 주십시오.

注意: 如果您使用繁體中文, 您可以免費獲得語言援助服務。請致電1-720-777-1234。

ВНИМАНИЕ: Если вы говорите на русском языке, то вам доступны бесплатные услуги перевода. Звоните 1-720-777-1234.

ማስታወሻ: የግንኙነት ቋንቋ አገልግሎት ለደንበኞች ከገንዘብ አገልግሎት ጋር ተያይዞ የሚሰጠው ተጨማሪ አገልግሎት ነው። ወደ ማስታወሻ ቁጥር 1-720-777-1234 (መስማት ስተት) ለተገናኙ።

ملحوظة: إذا كنت تتحدث انكر اللغة، فإن خدمات المساعدة اللغوية تتوفر لك بالمجان. اتصل برقم 1-720-777-1234 (رقم).

ACHTUNG: Wenn Sie Deutsch sprechen, stehen Ihnen kostenlos sprachliche Hilfsdienstleistungen zur Verfügung. Rufnummer: 1-720-777-1234.

ATTENTION : Si vous parlez français, des services d'aide linguistique vous sont proposés gratuitement. Appelez le 1-720-777-1234.

ध्यान दनुहोसतपाइने नेपाल बोल्नेहरू भने तपाइको निम्त भाषा सहायता सवाहरू नःशक्क रूपमा उपलब्ध छ । फोन गर्नुहोसर 1-720-777-1234 ।

PAUNAWA: Kung nagsasalita ka ng Tagalog, maaari kang gumamit ng mga serbisyo ng tulong sa wika nang walang bayad. Tumawag sa 1-720-777-1234.

注意事項: 日本語を話される場合、無料の言語支援をご利用いただけます。1-720-777-1234 まで、お電話にてご連絡ください。

Nti: O buri na asu lbo, asusu aka qasu n'efu, defu, aka. Call 1-720-777-1234.

EMER-180101-2023-03